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# Studies in North American Polygonaceae.—I.

By John K. Small.

In 1892 I began a study of the family Polygonaceae with special reference to the genera *Polygonum* and *Eriogonum*. Since that time, having been asked by the editors of the proposed Systematic Botany of North America, to prepare the manuscript on the family for the text of that work, I have made a careful review of the group. The results of my studies in *Polygonum** and *Polygonella*† have already been published and I intend, in the present paper and those of this series to follow, to publish some notes of general interest pertaining to the different genera of this fascinating family.

My studies have been furthered by the loan of a specimens and types from the Herbaria of the New York College of Pharmacy Harvard University, California Academy of Science, Missouri Botanical Garden and the National Herbarium. Professor Thomas C. Porter has contributed much valuable material of several genera, while Professor Edward L. Greene has generously placed the specimens of several of the species proposed as new in my hands, with the request that I describe them.

## I.—NEW SPECIES OF ERIOGONUM.

### Eriogonum depauperatum.

Perennial, slender, pale green. Stem woody, branched; branches tufted: leaves crowded; blades thinnish, linear-spatulate, 2–6 cm. long, obtuse or acutish, revolute, glabrous above, tomentose beneath; petioles slender, nearly ½ as long as the blades: scapes erect, 5–10 cm. tall, simple, sparingly pubescent or glabrate: bracts scale like, lanceolate: involucres 5–8 in a terminal head, tubular or tubular-turbinate, 3.5–4 mm. high, thinly tomentose; segments ovate, acutish, about ½ as long as the somewhat angled tube: calices pink, 2 mm. long, glabrous; segments unequal, the 3 outer broadly cuneate, undulate toothed at the truncate apex, the 3 inner cuneate, much narrower than the outer: filaments glabrous: achenes 3-angled.

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* Mem. Dept. Bot. Col. Coll. 1: 1–180.

† Bull. Torr. Club, 23: 406–408.

In dry soil on the Black Hills, South Dakota. Summer.

A species with the general habit of *Eriogonum pauciflorum*, but more delicate in all its parts. The leaves are more numerous than they are in its relative and the blades of a thinner texture, but the chief diagnostic character lies in the involucres; these organs are tubular or tubular-turbinate and twice as high as broad as compared with the campanulate involucres of *E. pauciflorum*, which are about as broad as high.

The original specimens were collected by Mr. Rydberg at Hermosa, in the Black Hills, South Dakota, June 23, 1892. Number 970. Altitude about 1,100 meters.

### ERIOGONUM TENUE.

Perennial from a shubby base, slender, thinly tomentose to the flowers. Stems loosely branching, 5–10 cm. long: leaves crowded at the ends of the branches, linear or nearly so, 1–2 cm. long, obtuse or acutish, revolute, thinly tomentose, but less densely so above than beneath: scapes erect, simple, 5–10 cm. tall, furnished with a whorl of leaf-like bracts above the middle: involucres solitary tubes; turbinate; segments linear to linear-oblanceolate, obtuse, shorter than the tubes, spreading or reflexed: calices glabrous, pale yellow, 5–6 mm. long, narrowed into stipe-like bases; segments unequal, the 3 outer oblong-obovate, notched at the apex, the 3 inner spatulate, erose at the apex: filaments villous at the base: achenes 3-angled, villous above the middle.

In dry sterile rocky situations on the Columbia River, Washington. Spring and summer.

A species of slender habit, near *Eriogonum sphaerocephalum*, but distinguishable by the narrow, linear, strongly revolute leaves and the glabrous calices.

The original specimens were collected by Mr. Suksdorf, on the Columbia River, in West Klickitat County, Washington, May 15, 1884. Number 694.

### ERIOGONUM PORTERI.

A dwarf perennial with glabrous or nearly glabrous foliage. Stems branched below; branches more or less densely tufted. sometimes gnarled: leaves firm; blades suborbicular or rhomboidal, 2–10 mm. long, obtuse or rounded at the apex; petioles as long as the blades or longer: scapes erect or ascending, 1–10 cm. long, simple: involucres glabrous; tube 2 mm. high, constricted at the middle, the recurved segments linear to oblanceolate, very unequal, longer than the tube: calices yellow, 6–8 mm. long at maturity; segments unequal, the 3 outer oblong-spatulate, often oblique at the base, the 3 inner cuneate-spatulate, slightly longer than the outer: filaments short, villous: achenes 3-angled.

On mountain slopes at high altitudes, Utah and Nevada. Summer and fall.

The specimens on which the above species is founded have erroneously been referred to *Eriogonum Tolmianum*. The stouter habit, the glabrous or almost glabrous foliage, the leathery leaves, the smaller involucres with their linear or oblanceolate segments and the less manifestly stipitate calices with their oblong-spatulate oblique outer segments, prevent it from being merged with *E. Tolmianum*. We have specimens as follows:

*Nevada:* Clover Mountains, September, 1868, altitude 3,000 meters. *S. Watson*, no. 1014.

*Utah:* Bear River Canon, August, 1869, altitude 2,900 meters. *S. Watson*, no. 1014. Uinta Mountains, September 25, 1879. *T. C. Porter.*

### ERIOGONUM COVILLEI.

Perennial, dwarf, caulescent. Stems branched at the base; branches forming tufted mats, forking, 2–3 cm. long, usually gnarled: leaves densely crowded at the ends of the branches, spatulate, 4–8 mm. long, obtuse or acutish, villous-tomentose or canescent, sometimes glabrate above; petioles much shorter than the blades: scapes erect or ascending, 1–4 cm. long, topped by a 2–6-rayed umbel: bracts foliaceous, oblong or linear-oblong: involucres turbinate, villous-tomentose; tube 2 mm. high, slightly enlarged at the base, constricted near the middle; segments 6–10, spreading, linear-oblong, obtuse: calices golden-yellow, glabrous, about 3 mm. long; segments cuneate or the outer cuneate-obovate, all rounded at the apex or the inner retuse: filaments villous near the base: achenes 3-angled.

At high altitudes in the Sierra Nevada, California. Summer.

Among the many distinct species heretofore grouped under *Eriogonum umbellatum*, the present one is a conspicuous example. The dwarf stature and habit debar it from *E. umbellatum*, while the peculiar villous or canescent tomentum of the foliage is unknown in that species.

The original specimens were collected on the high Sierra Nevada Mountains, California, in 1891, by Mr. F. V. Coville and Mr. F. Funston. Number 1656.

## ERIOGONUM CROCEUM.

Perennial, shrubby below, tomentose. Stems spreading, 1–3 dm. long; branches often tufted: leaves clustered at the ends of the shoots; blades oval or orbicular-oval, 1–1.5 cm. long, obtuse, tomentose or glabrate above, abruptly narrowed at the base; petioles variable, some shorter than the blades, some longer: scapes erect, 1–2 dm. tall, simple, usually naked, except the whorl of leaf-like bracts subtending the compound umbel and one bract near the middle of the scape: involucres terminal, thinly tomentose; tubes broadly turbinate, 2–2.5 mm. long, finely ribbed; segments longer than the tube, unequal, usually broadest above the middle, acute: calices glabrous, golden yellow 5–6 mm. long, narrowed into a long stipe-like base; segments unequal, the 3 outer oblong, the 3 inner cuneate-spatulate, all obtuse: filaments villous below the middle: achenes 3-angled, 4 mm. long, sparingly villous at the apex.

A beautiful species hitherto confounded with *Eriogonum umbellatum*. It is easily distinguished by habit, and the peculiar compound umbel is at once diagnostic. The scape often bears one leaf-like tract near the middle and commonly produces a branch several centimeters below the base of the umbel. I note the following specimens: Idaho Plants, no. 3414, *Heller;* Burnes, Grant County, Oregon, September 28, 1896, *Brown;* Redfish Lake, Idaho, no. 420, *Evermann*. Ranges from 1,100 to 2,000 meters in altitude.

## ERIOGONUM TRICHOTOMUM.

Perennial, rather slender, densely tomentose. Stems woody, branching; branches spreading, 1–2 dm. long: leaves chiefly confined to the ends of the branches, elliptic, oval or spatulate, 8–15 mm. long, obtuse, slightly revolute, somewhat less densely tomentose above than beneath; petioles much shorter than the blades: scapes erect or ascending, 1–2 dm. tall, topped by a simple 3-rayed umbel, 2 rays with a whorl of bracts at the middle, 1 naked, all much shorter than the rest of the scape: involucres terminal; tubes broadly campanulate, about 2 mm. high, ribbed; segments oblong, recurved, longer than the tube: calices yellow, glabrous, 5–6 mm. long; segments spatulate, rounded or slightly retuse at the apex, the 3 inner somewhat narrower than the 3 outer: filaments villous below the middle: achenes 3 angled, 4 mm. long, villous below the apex.

At high altitudes, Mt. Hamilton, California. Summer.

One of the rare Californian species at one time referred to

*Eriogonum stellatum* and later to *E. tripodum.* Professor Greene has lately said* that it cannot be associated with *E. stellatum*, and to prevent the excellent *E. tripodum* from becoming a composite species we must describe it as new. Besides the less strict habit and the broader leaves, the glabrous calices serve as a ready means of separation between this species and *E. tripodum.*

The original specimens were gathered by Professor Greene on the southern and western slopes near the summit of Mount Hamilton, California.

### ERIOGONUM PULVINATUM.

Perennial, matted, densely woolly-tomentose. Stems much branched, woody below: leaves crowded, spatulate, 5–8 mm. long, obtuse, wooly; blades thick, slightly revolute, narrowed into winged petioles: scapes erect, 1–1.5 cm. long, topped by a head of several involucres: involucres turbinate-companulate, 3-4 mm. high, partially deciduous; segments 5 triangular, green, shorter than the hyaline tube: calices oblong-campanulate, 2.5–3 mm. long, villous within and without, the hairs often pointing downward; segments oblong, obtuse, erect, twice as long as the tube, the inner 3 narrower than the outer: filaments slender, exserted, villous at the base: style-branches elongated: achenes 2 mm. long, 3-angled, densely villous with tangled hairs.

In dry soil, southern Utah. Spring and summer.

A dwarf species belonging to a group peculiar to the higher altitudes of the Sierra Nevada Mountains. It is related on the one hand to *Eriogonum gracilipes* and on the other to *E. nivale.* The glandless peduncle is sufficient to separate it from the former species. From *E. nivale* it differs in the looser tomentum, the clustered involucres and the villous calyx-segments.

The original specimens were collected by Mr. M. E. Jones, at Milford, Utah, June 17, 1880. Altitude about 1,500 meters.

### ERIOGONUM SISKIYOUENSIS.

Perennial from a shrubby base, nearly glabrous. Stems very short or sometimes several cm. long: leaves crowded at the ends of the branches, 5–10 mm. long; blades elliptic or oval, acute or acutish, glabrous above, slightly tomentose beneath, somewhat revolute, short-petioled: scapes erect, simple 3–8 cm. tall, furnished with a whorl of bracts above the middle: involucres cam-

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* Pittonia, 3:201.

panulate; tube 3.5–4 mm. high: calices yellow, glabrous, 5 mm. long, contracted into a stipe-like base; segments cuneate-spatulate, rounded at the apex, concave, the 3 inner narrower than the three outer: filaments villous below the middle: achenes 3-angled, glabrous.

In alpine regions, northern California. Summer.

Under the name *Eriogonum Tolmianum** Prof. Greene refers to this plant as a "neat and pretty alpine species," and this it is. However, the species does not represent Hooker's *E. Tolmianum*, and may be distinguished from it as well as from all its relatives in the *umbellata* group by the long, solitary pedicel which is subtended by a whorl of several bracts.

The type specimens were found by Prof. Greene on the Scott Mountains, Siskiyou County, California, August 22, 1876. Altitude about 2,500 meters.

### ERIOGONUM VINEUM.

Perennial from a stout tap root, closely white-tomentose to the flowers. Stems branching; branches tufted, clothed with the persistent leaves or leaf-bases: leaves crowded; blades suborbicular or broadly oval, 5–8 mm. long, obtuse or rounded at the apex, abruptly narrowed or truncate at the base; petioles as long as the blades or shorter: scapes erect, 2–8 cm. long, simple: bracts lanceolate to ovate, united at the base: involucres 4–6 in terminal heads, vase-shaped, 4.5–5.5 mm. high, angled, constricted near the top; segments ovate, ⅓–¼ as long as the tube, the tips recurved: calices vinous-red or cream-colored tinged with vinous-red, finally 5–6 mm. long, glabrous; segments very unequal, the 3 outer oval, cordate at the base, the 3 inner spatulate, more or less crisped: filaments villous at the base: achenes glabrous, 3-angled, 4 mm. long; base acute; angles margined at the apex.

In the mountains, Oregon and California. Spring and summer. 1550–2500 meters.

*Eriogonum ovalifolium* together with several species has been unfortunate at the hands of most of the later authors in being made a group instead of a natural species. The present species is a conspicuous plant on account of the velvety white-tomentose foliage and the large heads of vinous-red flowers. Besides the peculiar color distinctions, the vase-shaped involucres and the large calices readily separate the species from *E. ovalifolium*.

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*Fl. Francis, 143–144.

I have the following specimens before me: California, near Rose mine, San Bernardino Mountains, altitude 2100 meters, June 17, 1894, no. 3170, *S. B. Parish*; Oregon, Powder River Mounains, altitude 2,500 meters, August 7, 1896, *W. C. Cusick.*

### ERIOGONUM ROSULATUM.

Perennial, dwarf, canescent-tomentose. Stems much branched; branches densely tufted, forming matted cushions: leaves in densely crowded rosettes; blades ovate or suborbicular, 2–5 mm. long, obtuse, thick, closely tomentose, abruptly narrowed or truncate at the base; petioles shorter than the blades, dilated at the base: involucres sessile, or at maturity on scapes 1–1.5 cm. long, broadly turbinate, 3 mm. high, villous tomentose; segments about as long as the tube, unequal, lanceolate to ovate, obtuse: calices pink to vinous, 2.5–3 mm. long, glabrous, contracted into a short stipe-like base; segments firm, the inner and outer nearly equal, cuneate, retuse at the apex, especially the inner 3: filaments short, glabrous: achenes 3-angled, 2.5 mm. long, glabrous.

At high altitudes, near Mineral King, Sierra Nevada, California. Summer.

One of the few species in which the peduncle is wanting, or almost wanting, at least during the flowering period. The species is related to *E. marifolium*, the leaves resembling those of that form. The plants form compact cushions several centimeters in diameter, on account of the many short branches and the very densely imbricated leaves. The retuse calyx-segments, the glabrous filaments and glabrous achenes all serve to distinguish the two species.

The type specimens were gathered near Mineral King, in the Sierra Nevada Mountains, on the Death Valley Expedition, by Mr. F. V. Coville and Mr. F. Funston. Number 1549.

### ERIOGONUM POLYPODUM.

Perennial, from a shrubby base. Foilage densely canescent-tomentose: stems much branched; branches spreading radially: leaves thick, crowded; blades loosely ovate to suborbicular, obtuse, revolute, sometimes glabrate above, abruptly narrowed or cordate at the base; petioles stout, shorter than the blades: scapes numerous, erect, 5–15 cm. tall, simple below, topped by a 3–6-rayed umbel, or a head: involucres sessile or their peduncles 1–5 mm. long, turbinate, 3–4 mm. high; segments 5–7, usually 6, oblong, obtuse, spreading: calices glabrous, about 3 mm. long; segments pink with a reddish rib, unequal, the 3 outer broadly oblong, the 3 inner cuneate-spatulate: filaments glabrous: achenes 3-angled, glabrous.

In dry soil, southern California. Spring and summer.

A dwarf species related to *Eriogonum marifolium*, the foilage of the two species being quite similar. The plants of *E. polypodum* that have come to my notice produce numerous scapes, each of which is topped by a head or a conjested umbel instead of the open more or less straggly umbel characteristic of *E. marifolium*. The broadly-oblong outer calyx-segments and the cuneate-spatulate inner segments together with the glabrous filaments all serve to distinguish the species here described as new from *E. marifolium*.

The original specimens were collected at Long Meadow, Tulare County, California, June 7–14, 1888, by Dr. Edward Palmer at an altitude of 2,200–2,800 meters. Number 204.

### ERIOGONUM HARFORDII.

Perennial by horizontal rootstocks. Foliage floccose-tomentose: leaves basal; blades spatulate, 2–6 cm. long, obtuse, crispen, densely white-tomentose beneath, floccose or glabrate above; petioles longer than the blades: scapes erect, 8–10 dm. tall, simple below, forking above, stout: bracts somewhat foliaceous below, scale-like above, involucres sessile, solitary or several at the ends of the ultimate branchlets, turbinate-campanulate, 5 mm. long, fluted; segments triangular-ovate, obtuse: calices white or pink, 3.5–4 mm. long, villous at the base; segments unequal, the 3 outer orbicular-oval, the 3 inner cuneate, longer than the outer, all erose or crisped: filaments villous near the base: achenes sharply 3-angled.

On dry hillsides in valleys, Mendocina County, California. Summer.

Near *Eriogonum affine* but more robust and of stricter habit. The leaf-blades are broadest above the middle, the involucres twice the size of those of *E. affine* and the calices pubescent at the base as contrasted with the glabrous calices of its northern relative.

Named for Mr. W. G. W. Harford, who collected the specimens in company with Dr. A. Kellogg, in Long Valley, Mendocina County, California. Number 874.

### ERIOGONUM MINIMUM.

A dwarf perennial with minutely canescent foliage. Stems branched; branches densely tufted, about 1 cm. long, clothed by the persistent leaves: leaves densely imbricated and crowded, the persistent ones of previous years, black, the fresh ones gray, spatulate or almost terete by the strongly revolute margins, obtuse, dilated at the base: peduncles erect, 5–10 mm. tall, simple; involucres solitary, turbinate-campanulate, 2.5 mm. high, fluted: segments triangular-ovate somewhat converging calices, villous at the base, 2.5–3 mm. long; segments unequal, the 3 outer segments oval, the 3 inner obovate, all obtuse: filaments villous at the base: achenes 3-angled.

At high altitudes in the Cascade Mountains, Washington. Summer.

This excellent little species has posed as *Eriogonum acaule*, but a casual observation is sufficient to demonstrate the impossibility of such a disposition. Besides its more slender habit, the white woolly pubescence in the case of *E. acaule* and the gray canescent pubescence in the case of *E. minimum* serve as a ready means of separation; further, the smaller fluted peduncled involucres and the calices villous only at the base cannot be specifically associated with the corresponding organs of *Eriogonum acaule*. The original specimens were collected on the Cascade Mountains, Washington, in 1882, by Mr. T. S. Brandegee. Number 372.

### ERIOGONUM CLAVELLATUM.

Perennial from a thick, woody base, pale green. Stem gnarled, branched; branches clustered, thinly tomentose; leaves fleshy, strongly revolute, cylindric-clavate, 1–1.5 cm. long, obtuse, glabrous without; petioles slender, 1–2 mm. long, tomentose: peduncles club shaped, 1–2 cm. long, simple or rarely forked: bracts scale-like: involucres deciduous, long campanulate, 4 mm. long, rib-angled; segments acute, dark green, erect: calices glabrous, pink, (?) 3.5 mm. long, urn-shaped; segments saccate at the base, bent out at the middle, crisped, the 3 outer fiddle-shaped, apiculate, the 3 inner rather cuneate, narrower than the outer, acutish: filaments villous at the base: achenes 3-angled, glabrous.

On rocky hill, Barton Range, southeastern Utah. Summer.

A low and one of the more peculiar species, most closely related to *Eriogonum ericaefolium* and *E. bicolor* from which it can be separated by the club shaped leaves and peduncles, the structure of these organs being unique in the genus. The branches of the inflorescence and the flowers are loosely articulated and easily fall away.

The type specimens were collected on the Barton Range, San Juan county, Utah, on July 13, 1895, by Miss Alice Eastwood. Number 132. (Distributed as *E. Mearnsii.*)

### ERIOGONUM NODOSUM.

A white-tomentose shrub, .5–1.5 meters tall, with spreading, forking branches. Leaves small, 2–6 mm. long; blades elliptic or elliptic-ovate, acutish, revolute, narrowed into short petioles: bracts scale-like, acute or acuminate: involucres turbinate-campanulate, 2.5 mm. long, angled, sessile; segments broad, much shorter than the tube: calices glabrous, pink, 3 mm. long; segments rounded at the apex, the 3 outer oblong or obovate-oblong, the 3 inner cuneate: filaments villous below the middle: achenes 3-angled, scabro-pubescent above the middle.

In dry soil, Don Cabesas, California. Summer and fall.

A strongly marked and very conspicuous shrubby species related to *Eriogonum Pringlei* and its western homologue, but much more robust and sparingly branched. All parts of the inflorescence are at least one-third larger, while the calyx-segments are narrower than in *E. Pringlei.* The achene is scabro-pubescent above the middle as contrasted with the glabrous achene of its homologue

The original specimens were found at Don Cabesas, California, on November 1, 1890, by Mr. C. R. Orcutt. Number 1462.

### ERIOGONUM PALLIDUM.

Perennial. Foliage clothed with a grayish-white tomentum: setm branching: leaves (lower ones not seen) alternate; blades linear-oblong to linear lanceolate, 1–2 cm. long, short-peteoled: scapes erect, topped by an umbel of three or more divisions, each division dichotomous or trichotomous below: bracts whorled, the lower linear, the upper scale-like: involucres sessile or some of the lower ones short-peduncles, obovoid, 2.5 mm. high, secund, somewhat crowded towards the ends of the branchlets; segments triangular to ovate, each surrounded by a scarious, half-circular ciliate margin: calices white to pink, glabrous, 2–2.5 mm. long, contracted into a very short base; segments unequal, the 3 outer oval or oval-obovate, retuse or notched at the apex, the 3 inner shorter and smaller than the outer, oblong or oval-oblong, rounded at the apex: filaments villous below the middle: achenes 3-angled.

In dry soil, northwestern Arizona and the Little Colorado River. Summer.

A peculiar pale tomentose specics related to *Eriogonum effusum.*

The branching of the divisions of the scapes primarally separate the two species; that of the new species representing the scorpoid dichotomy, while that of *E. effusum* represents forked dichotomy.

The specimens on which the species is founded were collected by Walter Hough on the Fewkes Exploring Expedition in August and September, 1896, on the Moki Reservation, northeastern Arizona and the Little Colorado River. Number 30.

### ERIOGONUM CURVATUM.

Perennial from a woody base. Stem branched, scaly, the branches tufted: leaves crowded at the ends of the branches; blades elliptic, 5–10 mm. long, acute or acutish, densely tomentose, short petioled; peduncles wire-like, 5–15 cm. long, curved, glabrous, simple below, forking above: bracts scale-like: involucres sessile, scattered towards the ends of the scapes, turbinate-campanulate, 2.5 mm. high, 5-angled; segments triangular, somewhat unequal, obtuse, erect: calices pink, glabrous, 1.5–2 mm. long; segments unequal, the 3 outer suborbicular, the 3 inner oblong, all rounded at the apex: filaments glabrous: achenes 3-angled.

At high altitudes, Long Meadow, Tulare County, California. Summer.

One of the numerous relatives of *Eriogonum Wrightii* and *E. trachygonum*, but more delicate in habit than either of those species. The lustrous wire-like scapes and glabrous filaments serve to separate it from its allies. The original specimens were collected at Long Meadow, Tulare County, California, at an altitude of 2,800 meters, July 7–14, 1888, by Dr. Edward Palmer. Number 207.

### ERIOGONUM CLAVATUM.

Annual, acaulescent. Leaves basal; blades 5–13 mm. broad, much broader than long, undulate, strigose-hispid on both sides, cordate at the base or rarely truncate; petioles about twice as long as the blades, hispid: scapes erect, solitary, glaucous, forked above, the ultimate division filiform, the lower internodes more or less swollen above the middle: bracts scale-like: peduncles hair-like, ½ cm. long, spreading: involucres narrowly turbinate, very small, less than 1 mm. long; segments obtuse, as broad as long, shorter than the tube: calices densely hirsute less than 1 mm. long, the segments nearly equal, ovate-lanceolate, acutish: filaments glabrous.

Near *Eriogonum capillare* but leaf-blades much broader than long and the pubescent hispid. The smaller involucres and the hirsute calices are diagnostic.

The type was collected in the mountains or northern Lower California, August 8, 1884, by Mr. C. R. Orcutt.

### ERIOGONUM GLAUCUM.

Annual, slender, acaulescent. Leaves basal; blades ovate or oval-ovate, 5–10 mm. long, obtuse, undulate-crisped, often inequilateral, softly hispid on both surfaces, obtuse or subcordate at the base; petioles 2–3 times longer than the blades, hirsute: scapes erect, solitary or several together, 1–6 cm. tall, glaucous, forked, the branches ascending or spreading: peduncles filiform, about 1 cm. long, more or less spreading: involucres glabrous, turbinate, 1 mm. long; segments oblong, obtuse, about as long as the tube: calices densely hirsute, 2 mm. long; segments lanceolate, acute, erect; filaments glabrous.

Closely related to *Eriogonum trichopes* and *E. inflatum*. Leaf-blades less rigid, less prominently nerved and more densely pubescent. Scapes more sparingly branched and involucres fewer than in either of its relatives. The lanceolate calyx-segments also serve to separate it from both relatives.

The type specimens were collected by Mr. C. R. Orcutt, in the Colorado Desert, in April, 1889.

### ERIOGONUM CAPILLARE.

Annual, slender, acaulescent. Leaves basal; blades orbicular-ovate, 1–2 cm. broad, acutish or apiculate, finely undulate crisped, truncate at the base or subcordate, sparingly strigose on both sides; petioles about as long as the blades, tomentose: scapes erect, 4–5 dm. tall, simple below, forking above, the ultimate divisions filiform or hair-like, 1–4 cm. long, erect or spreading: involucres turbinate, about 1 mm. long, glabrous; segments 5 oblong or ovate-oblong, obtuse: calices glabrous, about 1 mm. long, long-exserted, urn-shaped, pink; segments oblong, slightly dilated at the apex and slightly revolute about the middle, the 3 inner somewhat narrower than the outer: filaments glabrous, short: achenes 3-angled, 1 mm. long; base swollen; beak slightly shorter than the base.

Another relative of *Eriogonum trichopes* and *E. inflatum*, but readily distinguished by the tomentose pubescence of the leaves as contrasted with the hispid pubescence of the two older species. The scapes are not symmetrically branched, but rather irregularly forking and the peduncles longer than in both relatives. The glabrous calices are also diagnostic.

The original specimens were received from Dr. Ebert, U. S. A., who collected them at San Carlos, Arizona, in September and October, 1893.

### ERIOGONUM TRINERVATA.

Annual, slender, acaulescent. Leaves basal; blades suborbicular or orbicular-ovate, 1–2 cm. broad, obtuse at the apex, truncate or subcordate at the base, ciliate, pubescent with scattered hairs, conspicuously 3-nerved, these impressed above, prominent beneath; petioles hispid below, widely forking above, the ultimate divisions filiform: involucres goblet-shaped on spreading filiform peduncles 6–15 mm. long, glabrous, 1–1.5 mm. long, with an undulate border: calices deep pink, glabrous, nearly 2 mm. long; segments rounded at the apex, the 3 outer oblong, the 3 inner ovate: filaments short, glabrous: achenes 3-angled, glabrous.

In dry soil, Cimarron, Colorado. Summer.

A beautiful species related to *Eriogonum subreniforme*, but more robust in habit. In place of the densely tomentose leaf-blades of *E. subreniforme*, *E. trinervatum* has glabrous leaf-surfaces, except a few scattered hairs on the lower side. The blades are never cordate, as they are in its relative. The calices are at least twice the size, and the segments of the inner and outer series of entirely different shapes.

The type was collected by Professor Greene, at Cimarron, Colorado, August 25, 1896.

### ERIOGONUM TURBINATUM.

Annual, stoutish, acaulescent. Leaves basal; blades suborbicular, variable in size, some about 1 cm. broad, others 3–4 cm. broad, all more or less apiculate at the apex, softly tomentose on both sides, deeply cordate at the base; petioles about as long as the blades and tomentose like them: scapes erect, stout, solitary or several together, 2–4 dm. tall, forking above, the branches ascending: bracts scale-like: peduncles ascending or spreading: involucres shorter than the peduncles, turbinate, 2 mm. long, glabrous; segments usually 5, broadly ovate, obtuse, scarious-margined, shorter than the tube: calices glabrous, pink, about 2 mm. long; segments unequal, the 3 outer suborbicular, cordate, filaments short, glabrous: achenes 3-angled, nearly 2 mm. long, with an obovoid base, beaked.

In habit *Eriogonum turbinatum* resembles *E. deflexum*, though more robust, while in floral characters it is allied to *E. Hookeri*. The suborbicular outer calyx-segments readily separate it from

*E. deflexum*, with which species it has been confused, while the manifestly peduncled narrowly-turbinate involucres debar it from *E. Hookeri.*

The type was found by Mr. Pringle on mesas near Tucson, Arizona, May 2, 1884. Dr. Palmer collected the species at St. George, Utah, in 1877. Number 430.

## II.—A NEW GENUS OF POLYGONACEAE.

The mountains of southern California have yielded many interesting and peculiar plants; some of these have been carefully studied and properly disposed of, while others are still far from their true systematic positions. The plant known as *Oxytheca Parishii* is an illustration of the latter class. Leaving this species out of consideration for a moment, we will have two distinct strains in *Oxytheca;* the one extreme represented by *Oxytheca luteola* and the other by *Oxytheca perfoliata.* All known members of the group fall naturally into one or the other of the two divisions, save *O. Parishii,* and to include this in the genus necessitates a third subgenus and a great extension of the generic characters. The latter alternative was resorted to by Dr. Parry, the author of the species, but it seems to me unsystematic and confusing thus to extend simple and clear-cut genera to such an extent.

### ACANTHOSCYPHUS.

Annual, slender, nearly glabrous, acaulescent herbs, with erect, wiry, forking scapes. Leaves basal, firm, denticulate with spinulose teeth, dilated at the base. Bracts scale-like, ternate, united at the bases, inclined to one side of the axes. Involucres turbinate, truncate, on wire-like peduncles, with 18–20 hard ribs which are prolonged into as many rigid acicular awns, these surpassing the tube in length. Flowers 5–14, of two kinds: staminate included: pistillate exserted. Pedicels subtended by linear or linear-spatulate bracteoles. Calyx glabrous, segments 6. Stamens 9, inserted at the base of the calyx. Embryo with a long, curved radicle and accumbent cotyledons.

A monotypic genus of southern California.

### ACANTHOSCYPHUS PARISHII (Parry).

*Oxytheca Parishii* Parry, Proc. Davenp. Acad. Sci. 3: 176. 1882.

In dry soil, San Bernardino Mountains, California, altitude 1,400 meters, August 5, 1881. Number 993.